



1. Calculate the GCF and the lcm of the following numbers by Euclidean method: 630 and 528.

$$\begin{array}{r}
 630 \overline{)528} \quad 528 \overline{)102} \quad 102 \overline{)18} \quad 18 \overline{)12} \quad 12 \overline{)6} \\
 102 \quad 1 \quad 018 \quad 5 \quad 12 \quad 5 \quad \underline{6} \quad 1 \quad 0 \quad 2
 \end{array}$$

$$\text{GCF}(630; 528) = \underline{6}$$

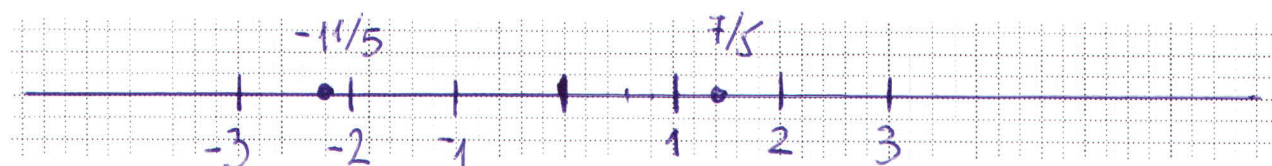
$$\text{lcm}(630; 528) = \frac{630 \cdot 528}{6} = \frac{327360}{6} = \underline{54560}$$

2. Calculate all divisors of 120.

$$\underline{\text{div}(120)} = \{1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120\}$$

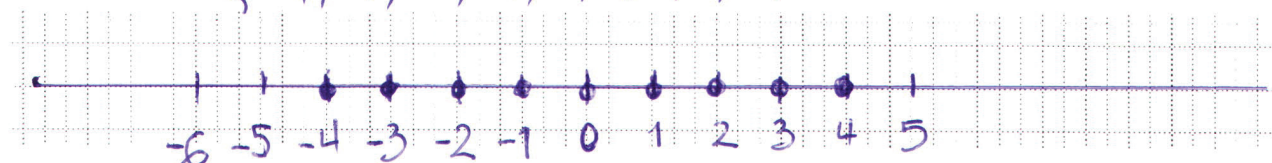
$$\begin{array}{l|l}
 1 \cdot 120 = 120 & 8 \cdot 15 = 120 \\
 2 \cdot 60 = 120 & 10 \cdot 12 = 120 \\
 3 \cdot 40 = 120 & \\
 5 \cdot 24 = 120 & \\
 6 \cdot 20 = 120 &
 \end{array}$$

3. a) Draw in the number line the following fractions: $7/5$ and $-11/5$



- b) Find and draw all the integers that work: $-4 \leq x < 5$

$$\{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$$





4. Work out:
- A half of $\frac{7}{8}$
 - One third of $\frac{9}{5}$
 - The triple of a half of $\frac{2}{3}$

$$a) \frac{1}{2} \cdot \frac{7}{8} = \frac{7}{16}$$

$$b) \frac{1}{3} \cdot \frac{9}{5} = \frac{9}{15} = \frac{3}{5}$$

$$c) 3 \cdot \frac{1}{2} \cdot \frac{2}{3} = \frac{3 \cdot 2}{2 \cdot 3} = 1$$

5. Evaluate the following expression step by step: $(-3\sqrt[3]{64} - 2^4 : 4 + 3) \cdot \sqrt{49}$

$$(-3 \cdot 4 - 16 : 4 + 3) \cdot 7 =$$

$$=(-12 - 4 + 3) \cdot 7 =$$

$$=-13 \cdot 7 = -91$$

6. Simplify the following radicals. Explain your results: a) $\sqrt{50}$ b) $\sqrt[3]{\frac{1}{1000}}$ c) $\sqrt[3]{864}$

$$a) \sqrt{50} = \sqrt{5^2 \cdot 2} = 5\sqrt{2}$$

$$b) \sqrt[3]{\frac{1}{1000}} = \frac{\sqrt[3]{1}}{\sqrt[3]{1000}} = \frac{1}{10}$$

$$c) \sqrt[3]{864} = \sqrt[3]{2^3 \cdot 3^3 \cdot 2^2} = 2 \cdot 3 \cdot \sqrt[3]{4} = 6\sqrt[3]{4}$$

$$\begin{array}{r|l} 864 & 2 \\ 432 & 2 \\ 216 & 2 \\ 108 & 2 \\ 54 & 2 \\ 27 & 3 \\ 9 & 3 \\ 3 & 3 \\ \hline & 1 \end{array}$$



7. Work out the following and simplify the resulting fraction: $\frac{-\frac{3}{5} \cdot 7 + 4 - \frac{1}{2}}{2 - 3 \cdot \frac{3}{5}} =$

$$= \frac{-\frac{21}{5} + 4 - \frac{1}{2}}{2 - \frac{9}{5}} = \frac{-\frac{42}{10} + \frac{40}{10} - \frac{5}{10}}{\frac{10}{5} - \frac{9}{5}} = \frac{-\frac{7}{10}}{\frac{1}{5}} = \frac{-7 \cdot 5}{10 \cdot 1} = \frac{-7 \cdot \cancel{5}}{2 \cdot \cancel{5}} =$$

$$= \boxed{-\frac{7}{2}}$$

8. Classify the fractions as their decimal form: a) $\frac{7}{8}$ b) $\frac{5}{6}$ c) $\frac{105}{3}$ d) $\frac{14}{11}$

a) $\frac{7}{8} = 0.875$ dec. finite; b) $\frac{5}{6} = 0.8\bar{3}$ dec. periódico

$$\begin{array}{r} 7 \overline{) 18} \\ 60 \\ 40 \\ 0 \end{array} \quad 0.875$$

$$\begin{array}{r} 5 \overline{) 16} \\ 20 \\ 2... \end{array} \quad 0.8\bar{3}$$

c) $\frac{105}{3} = 35$ Entero

d) $\frac{14}{11} = 1.2\bar{7}$ Dec. periódico

$$\begin{array}{r} 14 \overline{) 11} \\ 30 \\ 80 \\ 3... \end{array} \quad 1.2\bar{7}$$

9. Convert the following numbers to a fraction and simplify the result: a) 1,25 b) $8\bar{3}$ c) $2'68\bar{1}$.

a) $1.25 = \frac{125}{100} = \frac{25}{20} = \frac{5}{4}$

b) $8\bar{3} = \frac{83-8}{9} = \frac{75}{9} = \frac{25}{3}$

c) $2'68\bar{1} = \frac{2681-26}{990} = \frac{2655}{990} = \frac{59}{22}$



10. Write as a power whose base is a prime number: a) -343 ; b) $\frac{1}{64}$; c) $\left[(3^4)^{-2}\right]^3$; d) $\left(\frac{1}{9}\right)^3$

a) $-343 = -7^3$; b) $\frac{1}{64} = \frac{1}{2^6} = 2^{-6}$; c) $\left[(3^4)^{-2}\right]^3 = 3^{-24}$

343 | 7
49 | 7
7 | 7
1

d) $\left(\frac{1}{9}\right)^3 = \left(\frac{1}{3^2}\right)^3 = (3^{-2})^3 = 3^{-6}$

11. You have to answer to the following questions. You can write in Spanish or English.

- a) What are the rules to know if a number is divisible by 6, 9 and 10?

By 6: The number is divisible by both 2 and 3

By 9: The sum of the digits is divisible by 9

By 10: The number ends in 0

- b) What kind of factors could you take out in a cubed root?

The perfect cubes.

- c) What is the rule to round a decimal number to hundredths?

If the next digit is lower than 5 then it remains equal

If the next digit is 5 or more then it increases one
(the hundredth digit)

- d) Write almost three properties of the powers.

$$\begin{array}{l} a^n \cdot a^m = a^{n+m} \\ a^n : a^m = a^{n-m} \\ (a^n)^m = a^{n \cdot m} \end{array} \left| \begin{array}{l} a^{-n} = \frac{1}{a^n} \\ \left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n \end{array} \right|$$